

Voyage Across Iowa: A Sustainable Iowa-Wide, Community-Focused, Science Education Program that Leverages the *Voyage* Scale Model Solar System Exhibition Proposed for the Capitol Complex in Des Moines

Executive Summary:

Concept: A replica of the *Voyage* Scale Model Solar System exhibition on the National Mall in Washington, DC, is being considered for permanent placement in Des Moines (see <http://voyagesolarsystem.org>.) The effort is being led by Governor Chet Culver and Mr. John Pappajohn, renowned Iowan, entrepreneur, and philanthropist.

The Governor has proposed placing *Voyage* on the grounds of the Capitol Complex, symbolizing the State's commitment to science and technology education for students throughout Iowa.

To ensure that the *Voyage* exhibition is more than a passive experience for visitors to Des Moines, the leaders of the project require that the exhibition be the focal point for an Iowa-wide science and technology education program capable of engaging entire communities—grade K-12 students, their teachers, their families, and the public. The community programming in Des Moines would be unique given the presence of the *Voyage* exhibition. This document provides the concept for the state-wide program initiative.



The *Voyage* scale model Solar System on the National Mall in Washington, DC. The National Center for Earth and Space Science Education is making replicas available for permanent installation in communities world-wide.

Fundamental Objectives: Fundamental tenets of the exhibition and related programming are that exploration is innately human, that it is done by ordinary people who are passionate about pulling back the veil of nature to reveal the majesty of the Universe, that the legacy of scientific exploration can only be realized if the next generation chooses careers on the frontiers of science and technology, and that exploration is something to be embraced by all and throughout life, for learning is lifelong, and the joys of learning are immensely satisfying.



The initiative uses scientists and engineers as heroes and role models to the next generation with special emphasis on Iowa researchers; special emphasis is placed on reaching underserved communities; and science as a process of inquiry is the guiding paradigm.

From a national strategic vantage point, the initiative hopes to both inspire and educate students in STEM (science, technology, engineering, and mathematics) disciplines, and in a manner consistent with the Iowa Core Curriculum, in order to help ensure a U.S. workforce capable of competing in the high technology marketplace of the 21st century.

Program Elements and Heritage: The proposed initiative reflects customization at the state and local level of an existing diverse array of programming created and delivered by the National Center for Earth and Space Science Education under the banner '*Journey through the Universe*' and fully supporting the *Voyage* exhibition (visit <http://journeythroughtheuniverse.org>.) The programming embraces the Center's 'Learning Community Model' for program delivery at the local level, which is designed to engage an entire community. The proposed initiative includes: 1) programming delivered across the state that invests participants in powerful messages of exploration, and that inspires many to see the exhibit in Des Moines on a visit to the State Capitol, and 2) programming in Des Moines that is designed to maximize the experience of visitors to the exhibition.

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Fundamentally the initiative creates a network of ***Voyage Communities*** across the state, each engaged in community-wide learning through the *Journey through the Universe* program. Programming in each community, conducted by a National Team of scientists, engineers, and educators, includes workshops for teachers across entire school districts, researchers visiting thousands of grade K-12 students one classroom at a time, and programs for families and the public. This approach provides a natural framework for partnership across the local, state, and national organizations that are party to the initiative, for instance, recruiting and training of Iowa researchers to be part of the National Team traveling to communities (see attached document *Iowa Research Assets*.)

A ***Voyage Educator Program*** (VEP) will provide week-long professional development Institutes for teachers of science across the state. The goal is to create a network of science educators—the ***Voyage Science Education Ambassadors of Iowa***, and ***Voyage Science Education Fellows of Iowa***—that is used to: 1) ‘grow’ the Voyage Community Network, and 2) to disseminate and implement elements of the Earth and space science strand of the Iowa Core Curriculum through model ***Core Curriculum Units*** to be developed by the Iowa Department of Education. ***Teachable Moments in the News*** professional development will be delivered monthly via the Iowa Communications Network (ICN), and provide teachers lessons on late breaking news stories in Solar System science and exploration, allowing these stories to become ‘teachable moments’ in the classroom and science to take on currency.

Des Moines would serve as the anchor Voyage Community given the presence of the *Voyage* exhibition. Beyond receiving *Journey through the Universe* programming as one of the Voyage Communities, a significant ***Tours Program*** overseen by the Iowa Department of Cultural Affairs will showcase the *Voyage* exhibition to local residents and school groups, and to visitors from across the State.

Reach: Programming across a Network of 6 Voyage Communities would reach at least 13,000 students per year. A Network of 15 Voyage Communities would reach at least 31,000 students per year. The size of the Network is independent of the annual operating budget. It is dependent on the point at which the State reaches ‘program saturation’, and on the communities’ commitments to sustainability.

Funding and Timeline: The proposed state-wide programming is associated with a \$1M budget to underwrite start-up operations over the first two years, and an annual operating budget of \$779 K starting in Year 3. Mr. Pappajohn has committed up to \$500,000 for the overall initiative: \$350,000 to underwrite the purchase and permanent installation of *Voyage* in Des Moines, and to establish a Trust Fund to support ongoing maintenance of the exhibition; and \$150,000 as seed money toward the \$1M needed for startup operations. Mr. Pappajohn views his commitment as an incentive for, and contingent upon, other funders becoming partners in this initiative.

A Site Plan for *Voyage* on the Complex grounds, and this document, will be submitted to the Capitol Planning Commission in June 2008. If the Site Plan and the program initiative contained herein are approved by the Commission, and additional preliminary funding for programming is secured beyond Mr. Pappajohn’s commitment, then program development would begin in earnest in early Fall 2008, and the exhibition would be installed in Spring 2009.



Community Learning

(clockwise from top left) A sixth grade class visits Mercury on the National Mall; an educator workshop in Muncie Indiana, April 2000; Dr. Nathan James from NASA’s Goddard Space Flight Center engages a Washington, DC, class in October 2004; and Center astrophysicist Dr. Timothy Livengood autographing posters after a family science night ‘performance’ for 1,200 parents, students, and teachers in Broken Arrow, OK, January 2000.